

## ADVANCED MACROECONOMICS

Lecturers: Maxim Nikitin, Ph.D. and Vladimir Sokolov, Ph.D.

Class teacher: Nadezhda Ivanova, Ph.D.

### Course Description:

Advanced macroeconomics is a two-semester core course designed for the first-year students of the ICEF master of science programme in financial economics. The course is taught in English.

The course provides an overview of modern macroeconomics at the advanced level. It discusses models with microeconomic foundations, i.e. the models based on optimizing behavior of economic agents. The emphasis of the first part of the course is on analytical tools of modern dynamic macroeconomics and on the long-run issues, such as the economic growth. Students will learn standard 'workhorse' models of modern macroeconomics, including the infinitely-lived representative agent framework and the overlapping-generations framework, as well as some of the standard applications to fiscal policy and social security. Students will be also familiarized with the main ideas of endogenous growth theory, ways to introduce money in dynamic optimizing macroeconomic models and some of the long-run findings from these models, including the optimum quantity of money (the Friedman rule).

The second half of the course deals with the analysis of the short run macroeconomic phenomena. It introduces the real business cycle approach and the new Keynesian approach to the problem of economic fluctuations. It also familiarizes students with models of monetary policy that modern central banks utilize.

### Course prerequisites:

Students are expected to be familiar with microeconomics and macroeconomics at the intermediate level, calculus of several variables, basic statistics and econometrics.

### Course objectives:

- 1) To give a broad overview of substantive issues of modern macroeconomics.
- 2) To teach analytical tools and methods of macroeconomic analysis to enable students to continue their education at a Ph.D. level and to read research papers in the area.
- 3) To enable students to conduct applied analysis of macroeconomic policy while working for government agencies, think tanks, central banks or the private sector.
- 4) To give students the essential knowledge for applied courses, including monetary economics and finance.

### The Methods of Teaching

The following methods and forms of study are used in the course:

- lectures (2 hours a week)
- classes (2 hours every second week)
- written home assignments (1 per 2 weeks)
- teachers' consultations (2 hours per week)
- self study (4-6 hours per week)

The course is taught during two semesters of the first year of education at ICEF MSc programme. There are 28 hours of lectures and 14 hours of classes in the Fall term, and 28 hours of lectures and 14 hours of classes in the Spring term. Lectures are designed to help students to understand the main concepts of the course. The classes are used to equip students with problem solving skills, and to discuss applications of the theory to policy issues. The home assignments have two goals: they prepare the students for the exams, and they are used to monitor the students' progress in the course.

#### Grades determination:

The winter grade is based upon the homework assignments results (10%), the midterm test (20 %) and the winter exam (70 %).

The course grade is based upon the winter grade (35%), second semester homework assignments results (5 %), the second semester midterm test (10 %) and the final examination with external control (50 %).

#### Fall semester list of readings:

##### Required textbook:

Romer, David. Advanced Macroeconomics. 3d edition. McGraw Hill, 2005. (R)

##### Supplementary Readings:

In some topics the students may find it useful to consult the following textbooks:

Jones, Charles I. Introduction to Economic Growth. 2d edition. W.W. Norton, 2002 (J)

Ljungqvist, Lars and Thomas Sargent. Recursive Macroeconomic Theory. The MIT Press, 2000 (LS).

Obstfeld, Maurice and Kenneth Rogoff. Foundations of International Macroeconomics. The MIT Press, 1996 (OR).

Barro, Robert and Xavier Sala-i-Martin. Economic Growth. 2d edition. The MIT Press, 2003 (BSM)

McCallum, Bennet. Inflation: Theory and Evidence. Handbook of Monetary Economics, ch.18, 1990 (M)

Gong, G and Semmler W., Stochastic Dynamic Macroeconomics. Theory and Empirical Evidence. 1<sup>st</sup> edition, Oxford 2006 (GS)

Woodford, M., Interest and Prices: Foundations of a Theory of Monetary Policy, Princeton, 2003 (W)

Mark, N., International Macroeconomics and Finance. Theory and Econometric Methods. 1<sup>st</sup> edition, Blackwell, 2001 (M)

The main topics of the Fall Semester:

1. Introduction to economic growth. Solow model with endogenous growth, extensions and applications. J, ch.1-6, 8-10; R, ch.3.
2. Lucas critique and its impact on macroeconomic modeling. R, ch. 6, part A.
3. Dynamic optimizing macroeconomic models: an introduction and applications.
  - 3.1. Two-period model. The Euler equation. Application to the current account in an open economy. OR, ch. 1
  - 3.2. Infinitely-lived representative agent framework. Cass-Koopmans optimal growth model in continuous time. R, ch. 2, part A, BSM, ch. 2.
  - 3.3. Overlapping-generations framework and the Diamond model. Applications to fiscal policy and social security. R, ch.2, part B; OR, ch3, BSM, ch.3, Appendix.
  - 3.4. Ricardian equivalence: theory and evidence. R, ch. 11.
4. Endogenous growth. Advanced topics. BSM, ch.4-6.
5. Money in dynamic optimizing macroeconomic models.
  - 5.1. Sidrauski model in discrete time. Superneutrality, Tobin effect and the Friedman rule. M.
  - 5.2. Shopping time model. LS, ch. 17.
  - 5.3. Applications and doctrines: sustained deficits cause inflation, fiscal theory of the price level, unpleasant monetarist arithmetic, etc. LS, ch. 17.
6. Social infrastructure, predation and protection in macroeconomic models. J, ch.7; R, 3.11.
7. Models of unemployment (efficiency-wage models, work-shirk model, labour market matching, etc.) R, ch.9.

The main topics of the Spring Semester:

1. Business Cycle Dynamics.
  - 1.1 Methodological issues: VARs, impulse-response, trend decomposition, Hodrick-Prescott filter, M ch.2
  - 1.2 Stylized Facts: Co-movements of GDP components, cycles, money-output correlations, articles

Journal readings:

Stock, J. and M. Watson, “*Business Cycle Fluctuations in U.S. Macroeconomic Time Series*”, NBER Working Paper 6528, 1998.

Stock, J. and M. Watson, ”Vector Autoregressions” *Journal of Economic Perspectives*, 2001, 15-4, 101-115.

Blanchard O. and Quah D., “The Dynamic Effects of Aggregate Demand and Supply Disturbances”, *The American Economic Review*, Vol. 79, No. 4. (Sep., 1989), pp. 655-673

## 2. The Real Business Cycle (RBC) Model

2.1 RBC model: Theory and Solutions, R ch.4, GS ch.4

2.2 Standard and Generalized RBC models, GS ch.4

2.3 Empirics of the Standard RBC model, GS ch.5

2.4 International Real Business Cycles, M ch.5

2.3 RBC Puzzles and Critique, articles

Journal readings:

King, R. and S. Rebelo, ”Resuscitating Real Business Cycles”, NBER Working Paper 7534, 2000.

Rebelo, S. “Real Business Cycle Models: Past, Present and Future”, NBER Working Paper 11401, June 2005.

Gali, J. and P. Rabanal, “Technology shocks and aggregate fluctuations: How well does the RBC Model Fit Postwar U.S. Data?”, NBER Macroeconomics Annual 2004.

Rotemberg J., M. Woodford, “Real-Business-Cycle Models and the Forecastable Movements in Output, Hours, and Consumption”, *The American Economic Review*, Vol. 86, No. 1. (Mar., 1996), pp. 71-89.

## 3. The New Keynesian Model

3.1 Business Cycles with Nominal and Real Rigidities. The staggered price setting, menu costs, W ch. 3, GS ch. 8

3.2 The “modern IS-LM and AS-AD models”, articles

3.3 New Keynesian Philips Curve, W ch. 3

3.4 New Keynesian Monetary Policy, W ch. 6, articles

Journal readings:

King, R., “The New IS-LM model: Language, Logic, and Limits”, *Economic Quarterly, Federal Reserve Bank of Richmond*, 86-3, Summer 2000, 45-103.

Roberts J. , “New Keynesian Economics and the Phillips Curve” *Journal of Money, Credit and Banking*, Vol. 27, No. 4, Part 1. (Nov., 1995), pp. 975-984.

Clarida, R., J. Gali, and M. Gertler, “The Science of Monetary Policy: A New Keynesian Perspective”, *Journal of Economic Literature*, December 1999, 1661-1707

Gali, J., “New Perspectives on Monetary Policy, Inflation, and the Business Cycle”, NBER Working Paper 8767, February 2002.

Orphanides, A, “Monetary Policy Rules and the Great Inflation”, *American Economic Review*, 92 (2), pp. 115-120.